

C L A I M S

[1] A nonaqueous electrolyte secondary battery which has a positive electrode containing a positive active material, a negative electrode containing a negative active material and a nonaqueous electrolyte solution, said secondary battery being characterized in that said positive active material comprises a lithium transition metal complex oxide containing at least Ni and Mn as transition metals and having a layered structure and further contains zirconium.

[2] The nonaqueous electrolyte secondary battery as recited in claim 1, characterized in that said positive electrode in a fully charged state has a potential of at least 4.5 V (vs. Li/Li⁺).

[3] A nonaqueous electrolyte secondary battery which has a positive electrode containing a positive active material, a negative electrode containing a graphite material as a negative active material and a nonaqueous electrolyte and which is designed to be charged with an end-of-charge voltage of at least 4.4 V, said secondary battery being characterized in that said positive active material comprises a lithium transition metal complex oxide containing at least Ni and Mn as transition metals and having a layered structure and further contains zirconium.

[4] The nonaqueous electrolyte secondary battery as recited in any one of claims 1 - 3, characterized in that the amount

of zirconium contained in said positive active material is from 0.1 mole % to 5 mole %, based on the total amount of said transition metals.

[5] The nonaqueous electrolyte secondary battery as recited
5 in any one of claims 1 - 4, characterized in that a ratio in capacity of said negative electrode to said positive electrode (negative electrode/positive electrode) in their portions opposed to each other is in the range of 1.0 - 1.3.

[6] The nonaqueous electrolyte secondary battery as recited
10 in any one of claims 1 - 5, characterized in that said lithium transition metal complex oxide is represented by a chemical formula: $\text{Li}_a\text{Mn}_x\text{Ni}_y\text{Co}_z\text{O}_2$ (a, x, y and z satisfy $0 \leq a \leq 1.2$, $x + y + z = 1$, $0 < x \leq 0.5$, $0 < y \leq 0.5$ and $z \geq 0$).

[7] The nonaqueous electrolyte secondary battery as recited
15 in any one of claims 1 - 6, characterized in that said lithium transition metal complex oxide contains substantially the same amount of Ni and Mn.

[8] The nonaqueous electrolyte secondary battery as recited
20 in any one of claims 1 - 7, characterized in that said positive active material has a specific surface area of $0.1 - 2.0 \text{ m}^2/\text{g}$.